REMARKS/ARGUMENTS

Claims 1-10 stand in the present application. Reconsideration and favorable action is respectfully requested in view of the following remarks.

In the Office Action, the Examiner has rejected all of claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Aharoni et al. ("Aharoni") in view of Zhu et al. ("Zhu"). Applicants respectfully traverse the Examiner's § 103 rejection of the claims.

The Examiner admits that Aharoni does not teach or suggest certain elements of, for example, claim 1. See Office Action at page 3. However it is respectfully submitted that Zhu also fails to teach or suggest these claim elements. Moreover, those skilled in the art would not have been led to combine Zhu with Aharoni in the way the Examiner alleges.

Zhu discloses ascertaining the state of fullness of a receiving buffer at a terminal. However, Zhu does not disclose (i) "for at least one candidate version, computing in respect of at least one discrete portion as yet unsent the maximum value of buffer fullness that would be needed to avoid buffer overflow were any number of portions starting with that portion to be sent at the currently ascertained permitted rate," nor (ii) "comparing the determined maximum needed buffer fullness value(s) with the current buffer fullness state," as required by claim 1.

Taking (ii) first, Zhu performs a test involving (see Zhu at column 5, line 8) a comparison between the buffer fullness B_{n-1} with $S + E_n - \int_{t_{n-1}}^{t_{n+1}} R(t)dt$ which is a buffer fullness limit but is not the claimed "maximum needed buffer fullness." More particularly, it is a limit that, in order to avoid overflow, must not be reached. This

highlights a difference between Zhu and the present invention which is that the present invention is aiming to avoid underflow, whereas Zhu is trying to avoid overflow. To be sure, Zhu mentions in column 3, lines 8-11 that overflow or underflow may occur if steps are not taken to prevent them, but then goes on to observe at column 3, lines 26-30 that underflow is rare and not a severe problem, and in fact does not propose any steps to prevent underflow. So the most that Zhu may be said to teach in relation to underflow is that it can occur if no countermeasures are taken to prevent it; Zhu is silent on which countermeasures one might use.

Turning to (i), Zhu's quantity $\int_{t_{n-1}}^{t_{n+1}} R(t)dt$ might constitute "computing in respect of at least one discrete portion as yet unsent ...[a] value of current buffer fullness that would be needed to avoid [a undesirable condition]," were it not (leaving aside that the quantity is not explicitly calculated) for the fact that this quantity is not one that is needed but actually one that is to be avoided. Furthermore, it is certainly not the case that Zhu does this "for at least one candidate version," since of course in Zhu's case there is only one version altogether. Additionally, Zhu does not perform the computing of "the maximum value of buffer fullness were any number of portions to be sent at the currently ascertained rate" – i.e., considering the possibility of different numbers of portions and taking the largest of the buffer fullnesses that this gives. Zhu just derives one value, for the interval of t-1 to t+1 (see, *inter alia*, Zhu at column 5, line 8).

Accordingly, Zhu fails to provide several of the claimed integers that are missing from Aharoni.

Moreover, combining the teachings of Aharoni and Zhu would not result in the claimed invention. Aharoni is concerned with video streaming and in particular in choosing among different versions so as to suit the prevailing channel capacity. The whole purpose of Zhu, on the other hand, is to compensate for jitter, monitoring for probable overflow and applying bit stuffing if overflow is expected. Thus, the natural way to combine the teaching of Aharoni and Zhu would be to use Aharoni's method of stream selection and then use Zhu's method of correcting for jitter, applying bit stuffing if overflow is feared. This would not, of course, result in the invention as claimed. There is no reason why the skilled person wanting to improve Aharoni's method of version selection would see Zhu as relevant to the issue.

The advantage of the invention over Aharoni is that it provides a way of looking ahead and avoiding underflow problems that may arise some time later on in the streaming; there is nothing in Zhu which could be perceived as of help in addressing this issue, as Zhu's described mechanism is all about jitter, not stream selection, is dealing with overflow, and in any case does not look ahead beyond t+1.

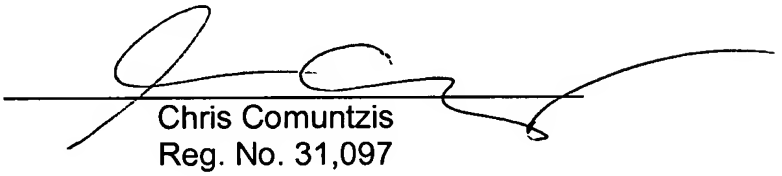
Of the other independent claims, claim 9 is an apparatus claim equivalent to claim 1 and the same arguments apply; likewise claim 7. The inventions of claims 2, 8 and 10 are fundamentally the same as claim 1, but instead of performing the whole computation for the particular current permitted data rate, it calculates the buffer fullness values in advance for a set of nominal rates and uses these to estimate the value for the actual rate once this has been ascertained, thereby reducing the amount of processing that has to be performed in real time. Zhu fails to remedy the deficiencies of Aharoni for

the reasons given above in respect of claim 1 plus which, neither Aharoni nor Zhu discloses this additional idea.

Therefore, in view of the above and remarks, it is respectfully requested that the application be reconsidered and that all of claims 1-10, standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

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